


INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference K 61 607/8 - /gh	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2004/013529	International filing date (day/month/year) 29.11.2004	Priority date (day/month/year) 29.11.2003	
International Patent Classification (IPC) or national classification and IPC INV. B66B23/14 B66B23/12			
Applicant OTIS ELEVATOR COMPANY et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 3 sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 03.08.2005		Date of completion of this report 04.04.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465		Authorized officer Eckenschwiller, A Telephone No. +49 89 2399-2088	



**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/013529

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

Description, Pages

1-14 as originally filed

Claims, Numbers

1-13 received on 03.08.2005 with letter of 02.08.2005

Drawings, Sheets

1/11-11/11 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2004/013529

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	1-13
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V.

1. GB-A-549616, which is considered to represent the closest prior art, discloses a people conveyor including a conveyor band 11 extending through an inclined portion, a first and a second turnaround portions and a return portion (fig. 1) and comprising a plurality of steps 11 connected to and driven by a step chain 13,14, the steps comprising a step roller 33,34, the people conveyor further including a step roller track 12,36,44 for guiding the step roller, the step roller track extending along the path of the conveyor band and having an inner 44 and an outer rails 36 for supporting the step roller, and a device 47,48,49 for restraining the step roller against one of the inner and outer rails, wherein said restraining device comprises elastically biased flexible strips attached to the truss of the people conveyor.

The subject-matter of claim 1 differs in that the restraining device is mounted to the step or to a connecting axle which connects one chain link on one side of the conveyor band with one chain link on the other side of the conveyor band so as to move together with the step. Therefore, the subject-matter of claim 1 is new (Article 33(2) PCT).

The problem to be solved may be regarded as providing a restraining device which is easy and at low costs to install.

A restraining device is also known from GB-A-492715. The restraining device therein is installed in the upper and lower part of the passenger conveyor in the upper and lower return stations of the steps. The restraining device comprises a movable endless belt supporting the step. The restraining device is neither mounted to the step nor to a connecting axle of the chains so as to move together with the step.

GB-A-203033 discloses a guiding system for steps of a people conveyor, wherein the steps comprise two rollers connected by a lever. The rollers are guided by inner and/or outer guide rails, wherein in the return station a transition is made by a roller from one of an inner or outer guide rail to the other one of the inner or outer guide rails by virtue of gravity. A restraining device as such is not disclosed therein.

GB-A-491301 discloses a restraining device mounted to the step as well as a restraining device mounted to a connecting axle which connects one chain link on one side with one chain link on the other side. However, the guiding system of GB-A-491301 includes one single guide rail for each step roller and does not disclose a guiding system comprising an inner and an outer guide rail for a step roller as claimed in the present invention. An additional inner or outer guide rail is not required in GB-A-491301.

Therefore, the subject-matter of claim 1 is inventive (Article 33(3) PCT).

2. Claims 2-13 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

15/19

K 61 607/8

CLAIMS

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1. People conveyor (2) including an endless conveyor band (4) extending through an inclined portion (6), a first and a second turnaround portions (8) and a return portion (5) of an endless path and comprising a plurality of steps (10) connected to and driven by a step chain (12), the steps (10) comprising a step roller (18), the people conveyor (2) further including a step roller track (20) for guiding the step roller (18), the step roller track (20) extends along the path of the conveyor band (4) and has an inner and an outer rails (24, 22) for supporting the step roller (18), and a device (30) for restraining the step roller (18) against one of the inner and outer rails (24, 22), *the restraining device (30) is mounted to the step (10) or to a connecting link (70) which connects one chain link (64) on one side of the conveyor band (4) with one chain link (64) on the other side of the conveyor band (4) so as to move together with the step (10).*
2. People conveyor (2) according to claim 1, wherein such restraining device (30) comprises an elastic biasing member (40) for elastically biasing the step roller (18) against one of the inner and outer rails (24, 22).
3. People conveyor (2) according to claim 1 or 2, wherein the restraining device (30) is adapted for allowing a gradual transition of the step roller (18) from one of the inner and outer rails (24, 22) to the other one from inner and outer rails (24, 22) in any of the first and second turnaround portions (8).
4. People conveyor (2) according to any of claims 1 to 3, wherein the restraining device (30) is arranged between the step (10) and the drive chain (12).

16/19

5. People conveyor (2) according to any of claim ^{5 1 to} 3, wherein one drive chain (12) is arranged at each lateral edge of the conveyor band (4), wherein each step chain (12) comprises a plurality of chain links (64) and wherein a connecting axle (70) connects one chain link (64) on one side of the conveyor band (4) with one chain link (64) on the other side of the conveyor band (4), and wherein the restraining device (30) is arranged between the step (10) and the connecting axle (70).
6. People conveyor (2) according to claim 5, wherein the restraining device (30) comprises a torsion spring (76) attached to the connecting axle (70) and supported thereto with one of the free ends (78) of such spring (76) and having the second free end (80) thereof arranged so as to engage the step (10).
7. People conveyor (2) according to any of claims 1 to 3, wherein the restraining device (30) is arranged between the step (10) and the step roller track (20).
8. People conveyor (2) according to claim 7, wherein the restraining device (30) comprises a supplementary roller (50) and a biasing means (40) for biasing the supplementary roller (50) against one rail (22, 24) of the step roller track (29).
9. People conveyor (2) according to claim 8, wherein the step roller (18) is attached to the step (10) by a connecting arm (16) and wherein the supplementary roller (50) is supported by the connecting arm (16).
10. People conveyor (2) according to claim 8 or 9, wherein the biasing means (40) biases the supplementary roller (50) against the outer rail (22).

- 500 11. People conveyor (2) according to any of claims 8 to 10, wherein the biasing means is a linear spring having a first leg (42) and a second leg (44) being bent with respect to each other by a predetermined angle, further comprising a supporting block (32) at the support arm (16), the supporting block (32) comprising a first and second recesses (34, 36) each portion of the first and second legs of the linear spring being respectively fitted to the first and second recesses (34, 36) to thereby limit deformation of the first and second legs (42, 44) of the linear spring to a predetermined range.
- 505 12. People conveyor (2) according to claim 11, further comprising a cover (38) mounted to the supporting block (32) to prevent the first and second legs (42, 44) of the linear spring from being separated from the first and second recesses (34, 36) of the supporting block (32).
- 510 13. People conveyor (2) according to claim 11 or 12, further comprising a member (52) for supporting the supplementary roller (50), the member (52) having a recess (53) in which a portion adjacent to the junction between the first and second legs (42, 44) of the linear spring is fitted, and a cover (54) which covers the recess (53) of the member (52).
- 515 14. ~~Device (30) for restraining rise of a step roller (18) of a people conveyor (2), the people conveyor (2) including steps (10) circulating a closed loop, a track (20) having inner and outer rails (22, 24) and providing the circulating loop of the steps (10), and a step roller (18) connected to each step (10) by means of a connecting member (16) and rolling along the inner rail (24) of the track (20), the device (30) comprising:~~
- 520 ~~a supplementary roller (50) disposed between the outer rail (22) and the inner rail (24) of the track (20);~~
- 525 ~~an elastic member (40) for supporting the supplementary roller (50); and~~
- 530 ~~a supporting block (32) mounted to the connecting member (16) and fixing the elastic member (40) thereto.~~